

Claims

- [c1] 1. An electronic fuse, comprising:
an insulating film;
at least one conductive region partially covering the insulating film; and,
at least one non-conductive region on the insulating film adjacent the conductive region.
- [c2] 2. The electronic fuse of claim 1, wherein the at least one conductive region comprises at least two conductive regions separated by the at least one non-conductive region.
- [c3] 3. The electronic fuse of claim 2, wherein a resistance is provided which changes by a prescribed value in proportion to a number of blown conductive regions of the at least two conductive regions.
- [c4] 4. The electronic fuse of claim 3, wherein the resistance increases in substantially uniform prescribed amounts as the number of blown conductive regions of the at least two conductive regions increases.
- [c5] 5. The electronic fuse of claim 4, wherein the resistance increasing in substantially uniform prescribed amounts

allowing digitized sensing levels.

- [c6] 6. The electronic fuse of claim 2, wherein the at least two conductive regions comprise conductive strips and the non-conductive region and the conductive strips are approximately parallel to one another.
- [c7] 7. The electronic fuse of claim 1, wherein the non-conductive region comprises a non-conductive material.
- [c8] 8. The electronic fuse of claim 7, wherein the non-conductive material comprises a gas.
- [c9] 9. The electronic fuse of claim 1, further comprising a first fuse lead and a second fuse lead disposed on the insulating film in electrical communication with the at least one conductive region.
- [c10] 10. The electronic fuse of claim 9, further comprising at least one electrical contact in electrical communication with the first fuse lead and at least one electrical contact in electrical communication with the second fuse lead.
- [c11] 11. The electronic fuse of claim 1, wherein the at least one conductive region are multiple conductive regions defined as conductive strips disposed on the insulating film with the at least one non-conductive region being multiple non-conductive regions between each of the

multiple conductive strips, wherein a first end of each conductive strip is in electrical communication with the first fuse lead and a second end of each electrical strip is in electrical communication with the second fuse lead.

[c12] 12. The electronic fuse of claim 9, wherein each conductive strip of the multiple conductive strips is in electrical communication with each other conductive strip through at least the first fuse lead or the second fuse lead.

[c13] 13. The electronic fuse of claim 1, wherein the insulating film comprises polysilicon and the at least one conductive region comprises a metal.

[c14] 14. An electronic fuse, comprising:
a polysilicon film with a top surface;
a conductive film disposed on the top surface of the polysilicon film forming a plurality of separate conductive regions; and,
non-conductive regions separating the plurality of separate conductive regions.

[c15] 15. The electronic fuse of claim 14, wherein the conductive film comprises a metal.

[c16] 16. The electronic fuse of claim 14, wherein the plurality of separate conductive regions alternate positions with the non-conductive regions.

- [c17] 17. The electronic fuse of claim 14, wherein the non-conductive regions are configured to limit current flow through the electronic fuse.
- [c18] 18. A method, comprising:
forming and defining an insulator film on a substrate; and,
forming at least one conductive region adjacent to at least one non-conducting region on a surface of the insulator film.
- [c19] 19. The method of claim 18, further comprising forming and patterning a mask to partially cover the insulator film.
- [c20] 20. The method of claim 18, further comprising removing the mask to form the at least one non-conductive region.
- [c21] 21. The method of claim 19, wherein the mask is either a salicide block mask.
- [c22] 22. The method of claim 18, further comprising depositing an insulator material in the at least one non-conductive void.
- [c23] 23. The method of claim 18, further comprising patterning the block mask to allow depositing a first fuse lead in

electrical communication with a first end of the at least one conductive region and a second fuse lead in electrical communication with a second end of the at least one conductive region.

[c24] 24. The method of claim 23, further comprising forming at least one electrical contact in electrical communication with the first fuse lead and at least one electrical contact in electrical communication with the second fuse lead.

[c25] 25. The method of claim 18, wherein the at least one conductive region comprises a metal.